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# How Should We Express Gratitude? The Effects of Method and Focus of Gratitude Expressions on the Self, the Other, and the Relationship

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# The Effects of Method and Focus of Gratitude Expressions on the Self, the Other, and the Relationship

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## Biography

The author was born on Long Island, New York, on August 17, 1991. She graduated from Hicksville High School in Hicksville, New York in 2009. She earned her Bachelor of Arts degree in Psychology from Loyola University Maryland, in Baltimore in 2013, and a Master of Arts degree in Experimental Psychology from St. John's University in Queens, New York in 2015.

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## Abstract

Two studies investigated the interpersonal and intrapersonal functions of gratitude expressions. In Study 1, participants expressed gratitude to a confederate in a lab paradigm (or expressed it privately) and consequently rated the confederate as significantly warmer and more competent. Sharing gratitude also led to a fortification of basic needs (belonging, self-esteem, meaning in life, and control). Study 2 attempted to replicate these results in addition to evaluating their own warmth and competence. Participants completed a week-long gratitude intervention that tested potential differences in the proposed two-factor model of gratitude expressions (manner of expression: private/shared, focus of gratitude: person/situation). The hypotheses that participants who share person-focused gratitude with their romantic partners will have higher satisfaction of needs and feel closer to their partner were not supported. Together, these studies create a mixed impression of gratitude's effects. Study 2 had severe limitations due to a deviation in the data collection method due to the COVID-19 pandemic. Therefore a replication of this study should be performed, and its findings weighed carefully.

# How Should We Express Gratitude?

## The Effects of Method and Focus of Gratitude Expressions on the Self, the Other, and the Relationship

Creating a strong bond and appreciation for each other is an essential factor in maintaining a romantic relationship. Evidence suggests that gratitude is one tool that serves this and many other purposes in romantic relationships (e.g., Algoe, Gable, & Maisel, 2010; Feeney & Collins, 2015). The feeling of gratitude is the positive emotion experienced when one is the recipient of intentional aid from another individual (Emmons, 2004). Gratitude expressions have garnered attention in relationship science due to mounting evidence that they potentially satisfy fundamental needs for the self, enhance interpersonal perceptions of their recipients, and promote the quality and closeness of romantic relationships.

The benefits of gratitude border on too-good-to-be-true. Feeling grateful increases psychological well-being (Lambert, Clark, Durtschi, Fincham, & Graham, 2010), prosociality (Ma, Tunney, & Ferguson, 2017), and even quality of sleep (Wood, Joseph, Lloyd, & Atkins, 2009). Gratitude interventions protect against psychopathological effects, including stress and anxiety (Disabato, Kashdan, Short, & Jarden, 2017; Jans-Beken, Lataster, Peels, Lechner, & Jacobs, 2018). Individuals can vary in dispositional gratitude, but those higher in trait gratitude are more satisfied with their lives (Kong, Ding, & Zhao, 2015; Watkins, Woodward, Stone, & Kolts, 2003) and less depressed (Sirois & Wood, 2017).

Researchers have thoroughly documented the benefits of experiencing gratitude, but two of its specific characteristics have been underexplored. The first

is whether people express gratitude privately or share it with others. Researchers have used a variety of methods to operationalize gratitude in their studies, from daily diary entries (e.g., Nezlek, Newman, & Thrash, 2016) to guided conversation for couples in the lab (e.g., Algoe, Fredrickson, & Gable, 2013), to counting daily blessings (Sheldon & Lyubomirsky, 2006). The main difference among these many operationalizations lies in whether gratitude was expressed privately or shared with another individual. Both methods boost positive perceptions of a romantic partner compared to control groups who do not express gratitude (Lambert & Fincham, 2011). However, no existing literature has directly examined differences that might exist between these separate avenues of expressing gratitude. The second characteristic that lacks understanding is the focus of one's gratitude. Expressing gratitude specifically for a partner or a partner's actions could produce different effects than expressing a general sense of gratitude for the greater circumstances of one's life.

The mere act of sharing one's gratitude with another person could produce effects above and beyond experiencing the emotion privately. In addition, if one expresses gratitude to their romantic partner for something their partner does, the benefits could potentially be maximized. In the current review, I summarize the role of gratitude in romantic relationships, examine the existing literature on gratitude's interpersonal and intrapersonal consequences, and present the four types of gratitude. I outline the benefits of gratitude as they relate to the self, the other, and the relationship. Finally, I discuss conclusions and future directions for research gleaned from the presented evidence.

**Why Gratitude?**

Many positive emotions (e.g., love, joy) can provide benefits for romantic dyads. Nevertheless, gratitude is unique in its social functions and interpersonal effects. Many researchers theorize that gratitude evolved as a psychological mechanism to promote prosocial behavior. In its simplest form, gratitude is a form of reciprocity. For instance, primates such as chimpanzees are more likely to share food with non-kin that have previously helped them groom themselves (Bonnie & de Waal, 2004). However, gratitude as we know it today is much more than a mere quid pro quo exchange. McCullough, Kilpatrick, Emmons, and Larson (2001) argue that gratitude evolved from basic reciprocity to serve three main purposes. Experiencing gratitude can serve as a mental notification that a benefit has been received. This helps to draw attention to important factors of the benefit, such as how costly it was to the other, how valuable it is to the self, and the intentions and motivations of the other. When someone passing in the hallway picks up a book you dropped, for example, the resulting feeling of gratitude reminds you to appreciate that this person stopped to help you.

The second and third functions of gratitude are to reinforce and motivate prosocial behavior, respectively. In other words, both receiving and expressing gratitude increase the likelihood of future prosociality (McCullough, Kimeldorf, & Cohen, 2008). Thanking the person who picked up your book makes them feel appreciated, which positively reinforces their helpful behavior. It also motivates them to help the next time they see someone in need. Furthermore, the relationship between receiving gratitude and acting prosocially is moderated in

part by social worth (Grant & Gino, 2010). When people are thanked, they feel more valued by that group or individual. The more valued people feel, the more likely they are to act prosocially in the future.

Gratitude is distinct from other discrete emotions. Other positive emotions, such as joy or happiness, also promote prosocial behavior, but not to the same extent as gratitude. For example, participants primed to feel either grateful or amused spent equal time doing a favor (i.e., filling out a boring survey) for another (Bartlett & DeSteno, 2006). Gratitude is also different from feelings such as indebtedness or obligation, both in the valence of the affect experienced and the likelihood of motivating prosocial behavior. Demonstrating these differences, when there are high expectations (compared to low expectations) to return a favor, participants report more indebtedness and less gratitude. Gratitude, but not indebtedness, was positively correlated with the total number of endorsed prosocial action-tendencies (e.g., "I would feel like helping my friend"; Watkins, Scheer, Ovnicek, & Kolts, 2006). According to appraisal theories of emotions, emotions are distinguished from each other in part by their associated action-tendencies (Moors, Ellsworth, Scherer, & Frijda, 2013). As such, gratitude is a separate and unique affective state that promotes a level of prosociality unmatched by other similar positive emotions.

Some researchers have included gratitude in the family of emotions, recently termed *self-transcendent emotions* (Stellar et al., 2017). This category refers to a collection of positive emotions (e.g., awe, compassion, appreciation, love) that enable an individual to look beyond their current needs and instead

consider the needs of another. Self-transcendent emotions serve a crucial role: they help form social bonds. From an evolutionary perspective, self-transcendent emotions may enhance the odds of survival by binding people together in groups, thus increasing access to resources and protection. Research suggests that expressing gratitude is positively linked to the expression of a particular gene (*CD38*) responsible for releasing oxytocin in the brain (Algoe & Way, 2014). People who express gratitude more frequently had higher levels of oxytocin after lab-based gratitude interventions. Consistent with evolutionary theory, the neurotransmitter oxytocin is responsible for producing feelings of social attachment (Savulescu & Sandberg, 2008). Together, the neuropsychological and evolutionary evidence suggests that gratitude is an essential emotion in forming and maintaining social relationships.

**Gratitude as a Trait and a State**

Being grateful is both a disposition and a state of mind. Prior research by McCullough, Emmons, and Tsang (2002) has established that trait gratitude (i.e., a grateful disposition) can vary in individuals. Being inherently grateful is positively associated with positive affect, happiness, life satisfaction, optimism, and prosocial behavior. Trait gratitude correlates negatively with negative affect and symptoms of depression and anxiety. In terms of the Big Five personality traits, individuals who are high in agreeableness and extraversion and low in neuroticism tend to be higher in dispositional gratefulness (McCullough et al., 2002). Lacking trait gratitude could be explained by a higher emotional threshold for acts that provoke feelings of appreciation. For example, a person low in trait

gratitude might not consider an individual holding a door open for him as an act deserving of his gratitude.

Not surprisingly, people high in trait gratitude tend to experience more often and more intense state gratitude (McCullough et al., 2002). State gratitude is a temporary experience influenced by situational factors, separate from a grateful disposition. This is perhaps best illustrated by the finding that religiousness is associated with dispositional gratitude, but not with behavioral gratitude (measured by the amount of money given to a partner who had performed a favor; Tsang, Schulwitz, & Carlisle, 2012). Compared to individuals low in trait gratitude, individuals high in trait gratitude tend to evaluate prosocial behavior as more altruistic, more valuable, and as being more costly to the helper. In turn, they reported they forecasted feeling significantly more grateful toward a person who helped them (Wood et al., 2008). The appraisals one makes about another's actions create a cognitive lens through which they experience the social world and results in having a certain level of trait gratitude (Wood, Froh, & Geraghty, 2010).

## The Consequences of Gratitude

### *Interpersonal and Intrapersonal Emotions*

Given that sharing positive events boosts positive affect in relationships (Gable, Reis, Impett, & Asher, 2004), and positive emotions activate a variety of thought-action tendencies that build emotional and social resources (Fredrickson, 2001), shared expressions of gratitude could provide more benefits to the self, the other, and the relationship than experiencing gratitude privately.

People can experience emotions both interpersonally and intrapersonally. That is, they may experience emotion differently depending on whether they are in the presence of others or by themselves. Levenson (1999) described a two-system structure of emotion (the core system and the control system) that highlights how emotions function on the intrapersonal and interpersonal levels. The core system refers to cognitive appraisals and understanding of emotions, whereas the control system regulates how those emotions are shared and expressed. In the context of intimate relationships, feeling gratitude and sharing gratitude impact dyad members and their relationship to different extents. Feeling grateful for a beautiful day, for example, may benefit the self but does not necessarily provide a direct benefit to their partner or the relationship.

On the other hand, expressing gratitude to one's partner for a specific deed could satisfy all three of these facets. Understanding the manner of expression could inform more effective gratitude expressions and benefit the self, the other, and their relationship.

### *Prosociality*

Gratitude may serve the critical function of strengthening close relationships. The find–remind–bind theory (Algoe, 2012) suggests that gratitude can serve three purposes of helping individuals find potential relationship partners, reminding them of one they already have, and binding them to their current partner. When it comes to initiating relationships, gratitude can be an important social emotion that helps others identify partners with whom they would like to interact. Researchers studied dyads formed in a sorority at the

University of Virginia, who all participated in Big Sister Week (Algoe, Haidt, & Gable, 2008). Each dyad, consisting of an existing member and a new member (one big sister and one little sister), expressed gratitude over four days via gift-giving and event planning. Results suggest that gratitude is instrumental in the relationship-building process between members of a dyad.

**Gratitude as a Positive Emotion**

Experiencing positive emotions can be both a predictor and an outcome of thriving. According to the broaden-and-build theory (Fredrickson, 2001), positive emotions (e.g., joy, interest, love) activate a variety of thought-action tendencies that build emotional and social resources. For example, when an individual experiences love, this feeling triggers the urge to play or to enjoy. These urges fortify closeness with a romantic partner, which is a socially and personally valuable resource. Contrary to the momentary survival-motivated nature of negative affect, individuals typically experience positive emotions in less life-threatening situations (Fredrickson, 2004b). As such, individuals have the time available for positive emotions to blossom and expand.

Feeling a sense of appreciation for your circumstances or a romantic partner allows an individual to contemplate the many action-tendencies that may be associated with gratitude (e.g., being more likely to partake in prosocial behaviors). However, expressing gratitude about one's partner or general things may generate different action-tendencies, thus producing different psychological and behavioral effects. For example, feeling grateful for sunny weather is likely to activate urges to explore or go outside. In turn, this increases an individual's

social experiences and resources (e.g., meeting someone new in the park). On the other hand, feeling grateful for a romantic partner's help with the dishes is likely to activate the desire to spend more time together, which strengthens a romantic bond within the dyad.

**Gratitude Expressions: A Two-Factor Model**

Although gratitude felt in any form is likely to provide positive outcomes, homing in on subtle differences in gratitude expressions is essential for relationship science and gratitude interventions. The focus of gratitude and the manner of its expression are two variables that remain relatively unexplored. Based on a review of the current literature, these two factors have emerged as major themes in gratitude expressions. The result of the interaction of how gratitude is expressed (private vs. shared) and the focus of the expression (situation vs. person) is a framework that includes four types of gratitude expressions (see Figure 1).

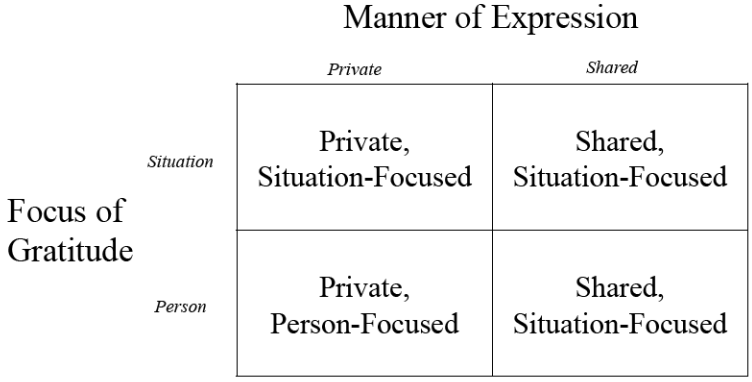


*Figure 1.* The proposed framework for categorizing gratitude expressions.

As discussed earlier, expressing gratitude privately may be a very different experience than communicating that emotion to another individual. Expressing gratitude privately may be more similar to a meditative, self-reflective experience. In this manner, expressing gratitude could be framed as a method of self-care and function like mindfulness, which can reduce stress and increase emotional well-being (Bluth & Eisenlohr-Moul, 2017).

Additionally, gratitude can be expressed either specifically for a person or more generally for a situation. *Person-focused gratitude* is gratitude one feels towards a person who has performed some act of service, from something as commonplace as giving directions to the more intimate act of providing emotional support after a rough day at work. This type of gratitude offers feedback for the expresser about the positive qualities of the other person and could have implications for close relationships, particularly if appreciation is lacking.

Conversely, *situation-focused gratitude* captures the idea that people can feel grateful for things beyond a particular deed from an individual. They can also be thankful for the circumstances in which they find themselves. People can experience situation-focused gratitude for things like their excellent health, a beautiful day, or their train being on time. This is distinctly different from appreciating another person because there is typically no one individual to thank for these things. Situation-focused gratitude may lack some of the interpersonal benefits that arise from person-focused gratitude.

Past literature has investigated these four proposed types to varying degrees of specificity. Two of these types have received far more attention than

the other two: shared, person-focused gratitude or private, situation-focused gratitude. This is perhaps because these conditions are the most congruent with each other. Shared/person-focused gratitude is the basis of many gratitude intervention studies (e.g., Lambert et al., 2010). If one feels gratitude for another person, it is natural to want to share it with them. If the proclivity for sharing on Facebook is any indication, individuals have a natural tendency towards sharing emotions with others. In a series of studies, participants recalled memories of either joy, anger, or fear (Rime, Mesquita, Philippot, & Boca, 1991; Study 1). Analyses revealed that 90% of recalled memories were instances of shared, interpersonal emotions, regardless of the emotional category. In a follow-up diary study, participants kept a diary of the most significant emotional event of their day (Rime et al., 1991; Study 3). Approximately 60% of those events were ones shared with at least one other person, and sometimes more than one. In the case of private, situation-focused gratitude, the nature of experiencing this gratitude intrapersonally is more congruent with the rather self-relevant focus of the emotion. It makes sense that people might reflect on the things they appreciate about their life instead of sharing these thoughts, for fear of it being mistaken for bragging. Indeed, the more an individual self-promotes, the less likeable and more braggart-like they seem (Scopelliti, Loewenstein, & Vosgerau, 2015). To manage others' impressions, a person might prefer to keep situation-based gratitude to themselves rather than sharing something like, "I'm so grateful for my huge promotion!"

***Shared, Person-focused Gratitude***

As mentioned, the majority of studies has centered around one expression type considerably more than others: sharing with a partner the things one appreciates about them. Expressing gratitude directly to a partner is critical in maintaining relationships. It increases a sense of communal strength (Lambert et al., 2010) and reinforces positive perceptions of the expresser (Kubacka, Finkenauer, Rusbult, & Keijers, 2011). Friends who express gratitude (as opposed to thinking about how grateful they are for each other) have more positive perceptions of each other and report being more comfortable with confronting issues in their relationship (Lambert & Fincham, 2011). Gratitude is an inherently relational emotion in which you experience positive feelings for something or someone. Therefore, interpersonal expressions of these emotions could be more beneficial than experiencing it alone. Private gratitude could indirectly benefit one's partner by making the expresser act in a warmer, more prosocial manner. But expressing gratitude to a romantic partner could have additional direct effects for one's partner (e.g., being perceived more positively) and the overall quality of the relationship.

***Private, Person-focused Gratitude***

People think of their romantic partner and the things they appreciate about them often. Results from an experimental study demonstrate that individuals primed to write about a valuable investment their partner had made in their relationship reported increased levels of relationship commitment. Crucially, both gratitude and trust mediated this relationship (Joel, Gordon, Impett, MacDonald, & Keltner, 2013).

Even when not explicitly expressed, feeling gratitude privately can act as a mechanism that elicits positive effects. In a clinical study, writing a letter of gratitude to an underappreciated person in one's life led to better mental health outcomes than psychotherapy alone (Wong et al., 2016). The examination of these effects, however, was limited to the person expressing gratitude. There may be benefits to the expresser's personal relationships as well, merely smaller than those produced by directly expressing gratitude to each other.

***Private, Situation-focused Gratitude***

In the current research, only a handful of studies have focused on the gratitude for our lives or about our current situation that we experience intrapersonally. One study operationalized this type of appreciation by having people spend time daily counting their blessings (Sheldon & Lyubomirsky, 2006). In a longitudinal comparison of methods that increase sustained positive emotions, participants either expressed gratitude privately (counting daily blessings) or visualized their best possible selves. At the end of four weeks, the most effective method in sustaining positive affect was visualizing one's best possible self. As the authors aptly note, visualizing a best possible self is inherently self-relevant, and so a measure of positive affect would be best suited to assessing its effects. Gratitude, however, is something inherently interpersonal. If, as predicted, the benefits to the self are more significant when shared, it comes as no surprise that it could not stack up against the benefits that come from visualizing one's best possible self.

Some research has suggested that there is a potential relationship between religiosity and gratitude due to the encouragement of counting blessings and expressing thanks to a deity. Religious activities like praying (Lambert 2009) and going to church (Alder & Fagley, 2005) are positively associated with feeling and expressing gratitude. However, a study that used a nationally representative sample found, out of seven measures of religiosity, only religious efficacy (defined as believing prayers were answered or witnessing a miracle) and having religious friends were significant predictors of gratitude (Kraus, Desmond, & Palmer, 2015). This finding demonstrates that private, situation-focused gratitude is not exclusive to people high in religiosity. On the contrary, thinking about daily blessings about one's life is an expression common to all.

***Shared, Situation-focused Gratitude***

The final type of gratitude expression is the most neglected of the four types. Perhaps it is due to the incongruence between sharing an emotion with someone even though the sentiment is almost entirely self-relevant. Sharing the many great aspects that one appreciates about their life could impact how others perceive them—particularly in a negative way. Others may perceive this type of gratitude expression as bragging masked by humility. People who partake in this behavior, deemed *humblebragging*, are perceived as less likeable, sincere, and competent (Sezer, Gino, & Norton, 2017). The desire to avoid negative perceptions might deter people from sharing their situation-focused gratitude, due it to being more relevant to the self than others.

On the other hand, it could be that expressing situation-focused gratitude to another person inspires them to also contemplate their daily blessings, in line with the broaden-and-build theory (Fredrickson, 2001). Indeed, sharing appreciation for living in a city with endless opportunities, for example, could inspire one's partner to consider that they are similarly grateful. In future research, it is important to empirically evaluate whether these particular gratitude expressions have the same consequences as humblebragging or instead generate more positivity.

## Consequences for Intimate Relationships

### *The Self*

When an individual expresses gratitude to their romantic partner, it satisfies several fundamental needs. Williams (2001) identified four psychological needs with which individuals grapple: belonging, self-esteem, control, and meaningful existence. Researchers initially studied these needs in the context of how exclusion from a group can introduce threats to the self. Conversely, these needs are potentially satisfied by processes that promote inclusion. Expressing gratitude has the effect of binding people together (Algoe, 2012), and communicating it to a romantic partner can create an intimate social bond, satisfying the need to belong. Exclusion can threaten the need for self-esteem, perhaps because a person interprets rejection as a signal that others do not like them (Williams, 2007). Given that one function of gratitude is to alert the self that a benefit has been received (McCullough et al., 2001), it is likely that this awareness also reminds someone that they are worthy of someone's altruistic acts

(Algoe, 2012). This could satisfy the need for self-esteem, and indeed evidence shows that gratitude and self-esteem are positively correlated (Kong et al., 2015). Research also suggests it is positively associated with well-being and moderates the relationship between perceived stressors and the toll they can take on self-esteem (Nezlek, Krejtz, Rusanowska, & Holas, 2018).

People also need to perceive that they have adequate control over their social world. Expressing gratitude can buffer against feelings of indebtedness that arise from receiving a benefit that was costly to someone else, maintaining a sense of relationship equity (Algoe et al., 2010). Finally, gratitude fulfills the need for a meaningful existence. Meaningful existence is related theoretically to life satisfaction, which expressions of gratitude are known to increase (Emmons & McCullough, 2003). However, this final need extends to concerns of an individual's existential impact on others. The prosocial motivations and formation of social bonds that result from expressing gratitude to a romantic partner can fortify the need for a meaningful existence. People want relationships with people who have high meaning in life, so satisfying this need for the self is likely to benefit the other and the relationship as well (Stillman, Lambert, Fincham, & Baumeister, 2011).

The potential for gratitude to benefit the self is clear when examined as a method for meeting each of these basic social needs. Gratitude is positive, prosocial, and interpersonal. Subsequently, it is intuitive that gratitude protects against threats that stem from ostracism or exclusion.

***The Other***

While the focus of the current work is on the gratitude expresser, there may be indirect benefits for the recipient of that gratitude. Receiving gratitude has similar (and even extra) outcomes as expressing it. As previously mentioned, being the recipient of someone's grateful expression can produce positive results, such as a prosocial outlook (McCullough et al., 2008). Being thanked makes people feel appreciated. But it also could serve as a cue for perceptions of warmth and competence. In the same way that feeling gratitude serves as a mental alert of receiving a benefit, expressing that gratitude to a partner reminds the expresser of the positive qualities in the person they are thanking (Lambert & Fincham, 2011).

Expressing gratitude to another person could bolster positive perceptions of them more so than expressing gratitude privately. Individuals typically use others' behavior and disposition to form judgments along the basic dimensions of warmth and competence (Fiske, Cuddy, Glick, & Xu, 2002). These judgments have the potential to signal a person's intentions and predictable behaviors (Snyder & Swann, 1978). For example, people use others' decision to forgive or not forgive their romantic partner's indiscretions as an indication of the forgiver's warmth and competence (DiDonato, McIlwee, & Carlucci, 2014). When you express gratitude to your partner, you are acknowledging that they have done something for which you are grateful. By noting this good deed or quality, it could enhance your perception of them. People who express gratitude to their partner potentially perceive that partner as warmer and more competent simply because they are the recipient of the expresser's emotion.

***The Relationship***

Finally, a relationship can benefit overall when partners express gratitude. Overall relationship satisfaction increases for both the expresser and recipient of gratitude. Recipients of gratitude can feel increased relationship satisfaction even as long as six months later (Algoe, Fredrickson, & Gable, 2013). In married couples, both feeling and expressing gratitude are associated with higher marital satisfaction (Gordon, Arnette, & Smith, 2011).

In addition to general satisfaction with a current relationship, gratitude likely increases a feeling of closeness between partners. Closeness has often been operationalized as the overlap of the self and the other (Aron, Aron, & Smollan, 1992). Closeness is a significant predictor of relationship outcome as far as nine months after initially measured, such that individuals who felt closer to their partner were more likely to still be together than individuals who did not report feeling as close (Berscheid, Snyder, & Omoto, 1989). Because perceptions of one's partner influence closeness (Aron, Aron, Tudor, & Nelson, 1991), and we perceive gratitude expressers as prosocial and warm (Williams & Bartlett, 2015), it follows that gratitude should make romantic partners feel closer to each other. In other words, measures of interpersonal closeness should reflect the binding function of gratitude (Algoe, 2012).

## Rationale

Research clearly indicates that gratitude has numerous interpersonal benefits. However, no past study has sought to clarify the specific factors in gratitude expressions that contribute to these benefits. These studies are uniquely designed to tease apart how the method of expression and focus of gratitude

influence the self, the other, and the relationship. There are several advantages of being able to maximize the impact of expressing emotions. Especially in times of strife, expressing positive emotions help to maintain the bond between partners. For example, couples under economic strain were better at coping with stress when they disclosed positive emotions more often (Rusu, Hilpert, Falconier, & Bodenmann, 2017).

The findings from this series of studies could have implications for couples' counseling and gratitude interventions. Across disciplines like positive psychology, clinical psychology, and health psychology, a deeper understanding of gratitude can help individuals cope with stressful times and maintain fulfilling interpersonal relationships.

The goal of the following three studies is to find evidence for the two-factor model (method and focus) in expressions of gratitude. Study 1 uses a lab paradigm to provide primary evidence for differences in the effects of private and shared gratitude expressions. Specifically, I will examine dependent variables relating to the self and the other. Provided that these differences do indeed exist, Study 2 will introduce the variable of the focus of gratitude (person-focused vs. situation-focused) and use a one-week intervention in which subjects express one of the four types of gratitude proposed in the two-factor model. Study 2 will use participants who are currently in a romantic relationship, which will allow us to measure the effects of gratitude on relationships as a whole, as well as the self and the other.

## General Hypotheses

Due to the inherent interpersonal nature of gratitude, I predicted that across both studies, shared (person-focused) gratitude will consistently produce more positive effects than any other type of gratitude expression in terms of warmth, competence, satisfaction of needs, closeness, and relationship satisfaction. The existing literature suggests that sharing gratitude is a more robust way to express it than simply contemplating it alone or writing it down in a journal. The specific hypotheses for each study are stated in the study overview.

## Study 1

### Overview

The first step in investigating the two-factor framework of gratitude expressions was to examine whether a difference exists in expressing gratitude privately or sharing it with a partner. This between-subjects study used a lab paradigm adapted from that used by Clark and Mills (1979) in their investigation of communal and exchange relationships. The specific hypotheses are stated below.

### Study 1 Hypotheses

Hypothesis I. Shared expressions of gratitude will lead to higher satisfaction of needs than private expressions of gratitude.

Hypothesis II. Shared expressions of gratitude will lead to higher ratings of warmth and competence of the confederate than private expressions of gratitude.

### Method

#### *Participants*

Participants (N = 61; 38 females, 23 males) included undergraduate students obtained from the university participant pool. Participants were required to be at least 18 years of age ($M_{age}$ = 20.90, $SD_{age}$ = 5.45) and speak and read English. Participants were randomly assigned to one of two conditions: private (n = 32) or shared (n = 29) gratitude expressions.

***Measures***

**Satisfaction of Basic Needs.** The Need Threat scale (Van Beest & Williams, 2006) contains four subscales that each measure a participant's current evaluation of their needs. The needs for belonging, self-esteem, meaningful existence, and control each measured by five items (e.g., *I feel like an outsider*, *I feel I have the ability to determine my actions*), creating a 20-item measure. The scale had high internal consistency ($\alpha$ = .943), which should be considered carefully due to the large number of items in this scale that could artificially inflate this value. Lower scores represent a lower perceived threat, and thus higher satisfaction, of basic needs.

**Warmth and Competence.** Perceptions of the partner were measured via the two dimensions of warmth and competence (Fiske, Cuddy, Glick, & Xu, 2002). Participants were asked to describe how well each of ten traits described the study confederate. The five items for warmth (e.g., *friendly*, *good-natured*) were averaged together for a warmth score, as were the five items (e.g., *confident*, *skillful*) for a competence score. Higher scores indicate that the participant perceived the confederate as warmer and more competent.

**Mood.** A short, four-item survey measured participants' moods. Respondents indicated on a scale of 1 (*strongly disagree*) to 7 (*strongly agree*) the degree to which they felt *good*, *sad*, *tense*, and *excited* (adapted from Wegner, Erber, & Zanakos, 1993). These items served as a concise way to capture mood, creating a short measure with acceptable internal consistency (Cronbach's $\alpha$ = .84). After reverse scoring responses to *sad* and *tense*, items were averaged together for each participant. Mood was measured as a control variable. We did not anticipate differences in the mood of the two groups, as this would constitute a potential confound to gratitude's effects on our dependent variables of interest. Higher scores reflect a more positive mood.

***Procedure***

Upon entering the lab, the participant met their partner (an undergraduate research assistant acting as a confederate) and provided informed consent. The experimenter read the directions aloud (See Appendix A), stating that the study was about cooperation. Participants were under the belief that for the first part of the study, they and the confederate would be working separately: one of them would be working on a *difficult* task while the other worked on a *simple* task. The experimenter noted that if the person working on the *simple* task finished early and had extra letters, they were allowed to donate them to their partner. The participant blindly chose their task out of an envelope. This choice was rigged so that the participant always received the *difficult* task. The experimenter asked the confederate (doing the *simple* task) to work in the front section of the lab, where she was out of sight of the participant.

The participant worked for six minutes on the *difficult* task (building as many words as possible from the letter tiles provided. After four minutes, the confederate asked to donate her extra letters to the participant, which the experimenter obliged. The experimenter gathered a pre-determined set of 17 letter tiles from the confederate and brought them to the participant's work station. The letters (A, A, E, E, F, L, N, O, R, R, S, S, S, S, T, T, T) were chosen to be the most helpful to the participant in completing their task. To keep up the ruse of the *difficult* task, the experimenter counted the final number of words the participant generated. Participants then wrote their partner a thank you note. The instructions for the note (See Appendix B) indicated one of two experimental gratitude conditions: private ("this is for experimenter use only") or shared ("this will be shared with your partner"). In the private condition, the experimenter placed the note in a manila envelope and stored it in a desk drawer. In the shared condition, the experimenter delivered the note to the confederate on the other side of the wall.

The participant then completed the counterbalanced measures of mood, basic needs, and person perception. They answered a single manipulation check question ("do you think your partner got your note?"). Finally, participants were debriefed as to the nature of deception used in the study and thanked for their participation.

**Results**

A two-tailed, independent-samples *t*-test was conducted for each dependent variable (satisfaction of needs, warmth, and competence) to analyze

differences between the two methods of expressing gratitude (private and shared). In addition, mood was analyzed to ensure that the groups did not differ, therefore eliminating mood as an alternative explanation for any observed effects.

***Manipulation Check***

Results of the manipulation check revealed 47 of our 61 participants (over 77%) correctly identified whether or not their partner received their note of gratitude. Significance levels in the analyses were not affected by keeping the 14 participants who answered incorrectly, so they remained in our sample.

***Satisfaction of Basic Needs***

All four sub-scales of the Need Threat scale (belonging, control, self-esteem, and meaningful existence) combine to create an average satisfaction score for each participant. Results demonstrated that participants in the shared condition ($M = 5.54$, $SD = 0.93$) experienced higher satisfaction of basic needs than those in the private condition ($M = 5.00$, $SD = 0.94$), $t(59) = 2.21$, $p = .041$, d = 0.57. Sharing gratitude with a partner, as compared to privately expressing it, fortified their basic needs. These findings support Hypothesis I.

***Warmth and Competence***

The results for warmth and competence support Hypothesis II. In the shared condition, participants perceived the confederate as warmer ($M = 5.79$, $SD = 1.15$) than did those in the private condition ($M = 5.16$, $SD = 1.01$), $t(59) = 2.27$, $p = .027$, d = 0.58. The same pattern was found for competence, such that people who shared their note of gratitude with the confederate ($M = 5.68$, $SD = 1.00$)

perceived her as more competent than did those whose note was kept private ($M$ = 5.17, $SD$ = 0.85), $t(59) = 2.11$, $p = .039$, d = 0.54.

***Mood***

On average, participants' mood was quite positive ($M$ = 5.66, $SD$ = 0.72). A one-sample, two-tailed $t$-test showed that the average mood was significantly higher than the midpoint of the scale, $t(60) = 18.1$, $p < .001$, d = 2.32.

There was no significant difference between the mood of the two groups, $t(59) = 0.17$, *ns*. Furthermore, the JZS Bayes Factor ($BF_{01}$) suggests the null hypothesis is 5.11 times more likely than the alternative hypothesis. JZS Bayes factors are typically more conservative estimates than traditional null-hypothesis significance tests and are useful with small samples (Rouder, Speckman, Sun, Morey, & Iverson, 2009). This null finding suggests that the differences we observed in the two experimental groups were likely not due to systematic differences in participants' moods.

***Exploratory Analyses***

In line with the other hypotheses, we expected that notes from the shared condition would be more grateful than those from the private condition. Three independent raters, blind to condition, read each note and rated how grateful the message was on a scale from 1 (*not grateful*) to 7 (*extremely grateful*). The raters had high inter-rater reliability, Pearson's $r$ = .95. A two-tailed independent-samples $t$-test did not support this prediction. Participants who knew their partner would receive their note wrote slightly more grateful notes ($M$ = 4.62, $SD$ = 1.60)

than those who expressed their gratitude privately ($M$ = 3.90, $SD$ = 1.76), $t(59)$ = 1.80, $p$ = .077, *ns*, but this difference was not statistically significant.

Finally, the number of words in each note was analyzed to look for differences between conditions. However, participants' notes were roughly the same length regardless of condition, $t(59) = 0.81$, $p = .421$, *ns.* This result demonstrates that participants did not differ in how long their note was, whether they thought their partner or just the researcher would read it.

**Discussion**

This study directly compared the effects of private and shared expressions of gratitude on need satisfaction and mood in a controlled lab paradigm. Consistent with our hypotheses, individuals who shared their gratitude with a partner reported higher satisfaction of basic needs and perceived their partner as significantly warmer and more competent than those who expressed gratitude privately. Private gratitude expressions produced levels of need satisfaction and perceptions of warmth and competence that were significantly above the midpoint of the scales. Still, they were no match for shared gratitude. These results suggest that perhaps sharing gratitude is the better option.

We measured mood to examine a potential alternative explanation for why the groups may have evaluated their partner and their own basic needs differently. People tend to make mood-congruent social judgments (Mayer, Gaschke, Braverman, & Evans, 1992), which could explain our results above and beyond the gratitude manipulation we created. If one group was systematically in a more positive mood than the other, this could introduce noise into the study design that

would confound the effects of the gratitude manipulation. However, participants reported their mood after they wrote their gratitude notes, and we found that the two groups were in equally positive moods. Therefore, mood can be ruled out as an alternative explanation for the results.

Notes from the shared condition were rated slightly more grateful than notes from the private condition. The exploratory qualitative analysis of the gratitude notes revealed this expected pattern, though it was not statistically significant. This may demonstrate an important point about gratitude expressions; it was not that participants in the shared gratitude condition expressed *more* gratitude than those in the private gratitude condition. By simply sharing this emotion with their partner, participants experienced the effects found in this study. It could have been the case that being in the shared condition engendered a longer or more grateful note, especially since public expressions of gratitude in light of personal success often give credit to people who help, while private ones do not (Baumeister & Ilko, 1995). In sum, this reinforces the findings from the experiment.

There are minor limitations to this study. Though the results allude to a fundamental difference between expressing gratitude privately and sharing it with the person for whom you are grateful, the sample size left this study underpowered. A direct replication of this study is necessary to confirm these findings.

Second, the participants in this study worked in a lab environment with a confederate they had just met. While this is an excellent paradigm for examing the

basic process of gratitude, it lacks mundane realism. To understand how gratitude functions outside an extremely controlled and superficial environment, it is essential to study it in a more realistic setting (e.g., between real life couples). The main goal of the general investigation is to examine the construct of gratitude in the context of romantic relationships. Future iterations of this study could recruit real couples and modify the procedure so that the participant expresses gratitude to their significant other instead of a stranger. The gratitude expressions (i.e., the written notes) in this study were also engineered by the study design itself, instead of generated spontaneously, which could have impacted the expressions' authenticity.

Overall, sharing gratitude fortifies basic needs and boosts positive perceptions of the recipient significantly more than expressing gratitude privately. In light of these findings and the limitations of Study 1, Study 2 was designed to theoretically replicate these effects as well as test the full two-factor model of gratitude expressions proposed earlier. Study 1 only tested effects for method of expression. Study 2 includes an additional manipulation of gratitude focus, which creates a factorial design appropriate for testing the influence of multiple independent varaibles.

## Study 2

### Overview

Given that the previous study provided evidence that private and shared gratitude expressions had the predicted effects on the satisfaction of needs and perceptions of warmth and competence, the goal of Study 2 was to test the two-

factor model (method and focus). If there are indeed marked differences in the four types of gratitude expressions, we expected an experimental intervention to reveal them. To address a limitation of Study 1, participants were required to be in a romantic relationship. The hypotheses for this study are stated below.

**Study 2 Hypotheses**

Hypothesis III. There will be a main effect of method of expression on satisfaction of needs, warmth and competence perceptions of the self and the other, closeness, and relationship satisfaction, such that shared gratitude will lead to higher ratings of these measures than private gratitude.

Hypothesis IV. There will be a main effect of focus on satisfaction of needs, warmth and competence perceptions of the self and the other, closeness, and relationship satisfaction, such that person-focused gratitude will lead to higher ratings of these measures than situation-focused gratitude.

Hypothesis V. There will be an interaction effect between the method of expression and focus, such that sharing person-focused gratitude will lead to the highest satisfaction of needs, warmth and competence perceptions of the self and the other, closeness, and relationship satisfaction compared to the other three types of gratitude expressions.

**Method**

This study used a $2 \times 2$ experimental design to explore the effects of gratitude expressions that varied in the method of expression (private; shared) and focus of gratitude (person; situation). Participants arrived at the lab and were randomly assigned to express one of the four types of gratitude for one week.

After their week had elapsed, they completed the final dependent measures online.

### *Participants*

Participants (N = 117) were recruited from the university SONA system. In addition to the requirements for Study 1, participants had to be in a romantic relationship. One hundred seventy-six participants completed the first part of the study in which they received their gratitude assignment, but only 119 completed the final survey containing the dependent measures. Participants received research credit proportional to their participation.

A power analysis using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) recommended a total sample size of 200 in order to obtain power of .80. The COVID-19 pandemic adversely impacted the data collection method and speed for this study, as noted later in the procedure. With the collected sample of 117 participants, a sensitivity analysis indicated a .80 level of power able to detect effect sizes of $\eta^2 = .06$. As such, results should be interpreted with caution.

### *Materials*

**Gratitude Expression.** Participants were randomly assigned to one of four gratitude conditions (private/person-focused, private/situation-focused, shared/person-focused, shared/situation-focused). Participants expressed gratitude in their assigned manner once a day for one week. The instructions included an example of how participants should express their gratitude (e.g., in the shared/situation-focused condition: “If you feel grateful for a beautiful day or

a good grade, share it with your partner. It is not necessary to write anything down" (for full instructions, see Appendix C).

***Measures***

**Satisfaction of Basic Needs.** Need satisfaction was measured as it was (Van Beest & Williams, 2006) in Study 1.

**Warmth & Competence.** The same person perception scale from Study 1 was used to evaluate warmth competence. Participants rated their partner's warmth and competence (Fiske, Cuddy, Glick, & Xu, 2002) as well as themselves.

**Closeness.** Closeness was assessed via the Inclusion of Other in the Self scale (IOS; Aron, Aron & Smollan, 1992). The scale is a single-item measure. The responses include seven options from which participants can select the degree of overlap they perceive between two circles representing themselves and their romantic partners. The IOS has been utilized extensively throughout relationship literature and has high reliability and validity (Aron et al., 1992). It has high convergent validity with other established measures of closeness (e.g., the Relationship Closeness Inventory; Berscheid, Snyder, & Omoto, 1989). The IOS has been extensively validated as a simple method of assessing relationship closeness (e.g., Gachter, Starmer, & Tufano, 2015).

**Relationship Satisfaction.** To measure relationship satisfaction, we used the Relationship Assessment Scale (RAS; Hendrick, Dicke, & Hendrick, 1988). The RAS contains seven items (e.g., how often does your partner meet your needs?), and responses range from 1 to 7, with higher scores indicating more

satisfaction with one's relationship. Responses to the RAS correlate moderately with the Dyadic Adjustment Scale and strongly with the Kansas Marital Satisfaction Scale, indicating good convergent validity. The test-retest reliability for up to seven weeks later was as high as .85 in a sample of undergraduate students (Hendrick et al., 1988). Participants completed the RAS at the end of their one-week gratitude intervention.

**Manipulation checks.** Participants completed a series of three questions to verify the quality of the manipulation of gratitude expressions. First, when accessing the final survey, participants were required to identify the gratitude assignment they received one week prior. At the end of the survey measures, participants assessed on a seven-point scale how seriously they took their gratitude assignment and how often they expressed gratitude during their one-week task. To be included in the analysis, participants were required to identify their condition correctly.

### *Procedure*

Participants arrived at the lab and sat with the experimenter, who explained to them the nature of the study. Each participant received a randomly chosen task slip that detailed their gratitude assignment (See Appendix A for full text). The researcher read through the instructions with the participant, using a highlighter to highlight the particulars of the task (e.g., "at least once a day"). The experimenter then filled in the date on which the participant would receive the link and password to access the final survey online (one week from the assignment session). Participants provided their email address and agreed to

receive daily reminder emails for one week. At the end of their week, participants received the link to the survey containing the dependent measures. All measures were completed via Qualtrics. Participants received partial course credit for their participation.

Due to COVID-19-related restraints placed on face-to-face interactions (beginning in mid-March 2020), this procedure was amended midway through data collection to be entirely online. The initial meeting with a researcher became a Qualtrics survey that randomly assigned participants to one of the four gratitude conditions and explained their task. There were no other changes made to the rest of the procedure.

**Results**

The aim of Study 2 was to apply the findings of Study 1 to individuals in romantic relationships. All means and standard deviations are displayed in Table 1 (See Appendix D). As noted previously, the original data collection method had to be adjusted to take place completely online, which introduced an unanticipated confounding variable into this study. To account for the two slightly different procedures, a third factor, Procedure Type, was included in all analyses. The pre-lockdown procedure (PL; n = 64) followed the original data collection plan, which included an on-site meeting between each participant and a research assistant to review the assigned gratitude task. The second procedure, during lockdown (DL; n = 53) did not include an in-person meeting. Instead, participants received their assignments via Qualtrics. In both procedures, all final surveys were online.

As Procedure Type was not a construct of interest or included as part of the original analysis plan, it is only discussed in cases where it was statistically significant.

***Manipulation Checks***

We asked participants to identify their assigned condition. Participants who selected the incorrect condition or indicated they could not remember their condition (n = 2) were excluded from analyses.

Participants also evaluated how seriously they took their gratitude assignment and how often they expressed gratitude during their one-week period. There were no significant differences among the four groups in how serious they took their assignment (all *p*s ranged from .19 to .92).

Unexpectedly, there was a significant interaction effect between method and focus on how often participants expressed gratitude, $F(1, 109) = 8.52$, $p = .00$, $\eta^2 = .07$. There was no difference in the number of expressions between those who expressed situation-based gratitude, regardless of whether they expressed it in a private or shared manner. However, for individuals who were tasked with expressing person-focused gratitude, those in the shared condition did so more often ($M = 5.26$, $SD = 0.70$) than those who expressed it privately ($M = 4.39$, $SD = 0.71$). This was an unanticipated effect that will be addressed later in the discussion for Study 2.

***Satisfaction of Needs***

**Reliability & Validity.** The internal consistency of the Need Threat scale was high (Cronbach's $\alpha = .94$). However, Cronbach's alpha is often insufficient

as a sole indicator of reliability, particularly for unidimensional measures (Cortina, 1993; Schmitt, 1996). Consequently, I conducted an exploratory factor analysis

To investigate the structure of the Need Threat scale, I would have ideally used a confirmatory factor analysis. The sample size of this study was insufficient to meet the requirements of a CFA. Instead, I conducted a principal component analysis (PCA) with an oblimin rotation to allow the factors to correlate with one another. Bartlett's test of Sphericity revealed a significant result ($\chi^2$ (190) = 1737, $p < .001$), but is likely inflated due to our relatively small sample size. One item, *I feel other people decide what happens to me* was removed from the scale because it did not load on any component.

The goal of the PCA was to determine the best factor structure for data analysis. I found the intended four-factor structure of the scale was unsupported. A scree plot and parallel analysis both suggested the presence of only one component that accounted for 53.3% of explained variance. As a result, the retained 19 items were averaged together, reflecting a global measure of basic needs.

**Analysis.** A two-way analysis of variance (ANOVA) examined the effects of method of expression, the focus of gratitude, and procedure type on satisfaction of needs. The data did not provide evidence for the effects originally predicted in Hypotheses III-V. There were no significant main effects of method ($F(1, 109) = 0.68$, *ns*) or focus of gratitude ($F(1, 109) = 0.03$, *ns*). However, there was a marginally significant main effect of procedure type, $F(1, 109) = 3.77$, $p =$

.055, $\eta^2$ = .03. The needs of participants who completed the original version of the procedure were slightly more satisfied ($M$ = 3.20, $SD$ = 0.23) than those who completed the amended, fully online procedure ($M$ = 3.11, $SD$ = 0.24).

There was also an unpredicted three-way interaction, $F(1, 109) = 4.71$, $p$ = .032, $\eta^2$ = .04. The marginal effect of the procedure type is most likely responsible for this interaction (Figure 2). In the PL procedure, there are no marked differences among the four gratitude conditions in the levels of their need satisfaction. For the DL procedure, however, those who expressed shared, person-focused gratitude ($M$ = 3.21, $SD$ = 0.17) were more satisfied than those who expressed private, person-focused gratitude ($M$ = 2.97, $SD$ = 0.33). This partially supports Hypothesis V.

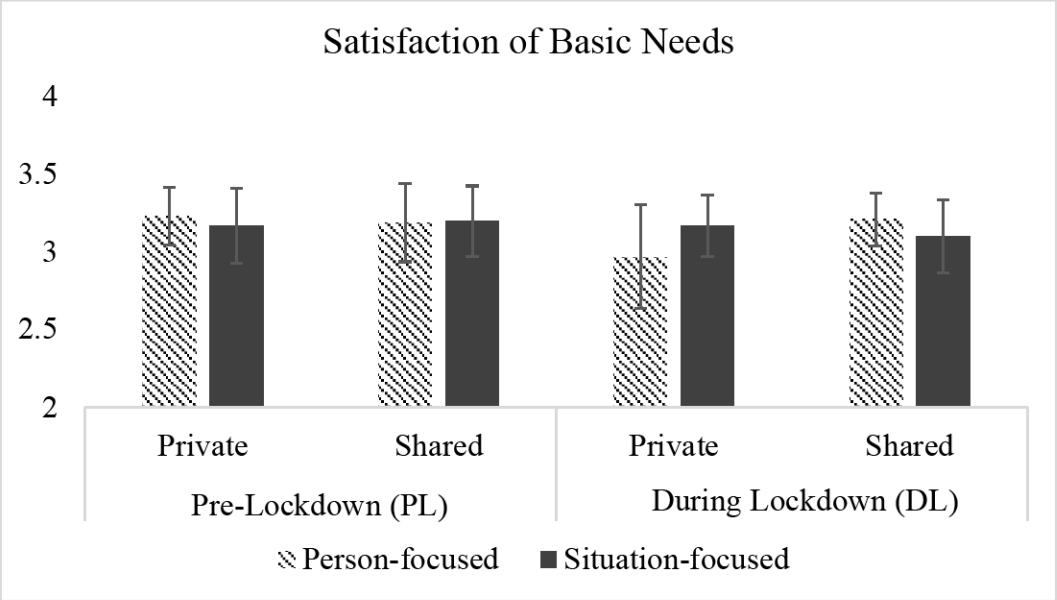


*Figure 2.* Means and standard deviations on the Satisfaction of Basic Needs scale. Higher scores reflect higher satisfaction of needs.

### *Warmth & Competence*

**Perceptions of the Partner.** Participants completed a questionnaire about how competent and warm they perceived their romantic partner to be after one week of expressing gratitude. A 2 × 2 × 2 ANOVA was conducted for competence, and another for warmth. There were no significant differences found among groups for either dimension of person perception (*p*s ranged from .14 to .99). This contradicts the expectations stated in Hypotheses III-V.

**Perceptions of the Self.** As with evaluations of their partner, participants completed measures of self-perceived warmth and competence. There were no significant findings for self-perceived competence. However, there was a significant interaction effect (as predicted in Hypothesis V) between method of expression and gratitude focus on self-perceptions of warmth, $F(1,109) = 4.26$, $p = .041$, $\eta^2 = .037$. When people expressed gratitude privately, they viewed themselves as warmer when they expressed gratitude about things in general ($M = 5.92$, $SD = .82$) than about their partner ($M = 5.43$, $SD = .99$). However, post hoc tests revealed that the contrasts were not statistically significant.

### *Closeness*

Study 2 included two measures evaluating participants' relationships. On the IOS, there was no significant main effects of method of expression, $F(1, 109) = 0.83$, *ns* or gratitude focus, $F(1, 109) = 3.09$, *ns*. There was no significant interaction effect, $F(1, 109) = 0.00$, *ns*. These findings do not lend their support to Hypotheses III-V.

### *Relationship Satisfaction*

Participants completed the seven-item RAS to assess how satisfied they were with their relationship. Similarly to closeness, there were no significant main effects of method, $F(1, 109) = 1.13$, *ns*, or focus, $F(1, 109) = .05$, *ns*, nor any interaction between them, $F(1, 109) = .01$, *ns* (all *p*s > .22). The prediction that participants in the shared/person-focused would be more satisfied in their relationship after the gratitude intervention was not supported (Hypothesis V).

**Discussion**

Study 2 investigated the two-factor model of expressing gratitude. Initially, I predicted that sharing person-focused gratitude would elicit robust and positive effects across all dependent variables. The results did not support this expectation. However, participants did rate themselves as warmer when they expressed private, situation-focused gratitude (compared to private, person-focused gratitude).

Factors like manipulation strength, low validity for the satisfaction of needs scale, and the COVID-19 pandemic may have influenced the outcomes of this study. Responses to the manipulation check question about how often participants expressed gratitude during their one-week assignment reveal a significant difference in the frequency of gratitude expressions. Participants expressed their person-focused gratitude more often if they were sharing it with their partner than if they had to write it down for themselves. A straightforward explanation for this effect could be the ease with which people can share gratitude with their partner. It only takes a few seconds to thank someone, whereas retrieving a journal to write down what you appreciate about your partner may be

more involved. This finding, though unintended, lends partial support to the two-factor model. Sharing person-focused gratitude is a more congruent way to express thanks than is privately expressing person-focused gratitude. In future studies, gratitude interventions should specify how often during the duration of the study participants should express their gratitude. This could increase the internal validity of the gratitude manipulation and the overall study.

As mentioned earlier, the COVID-19 pandemic imposed exceptional restrictions on data collection. Due to the closure of the university campus, all face-to-face interactions between researchers and participants had to cease. The original procedure of Study 2 changed so that data collection could continue virtually. Doing so introduced variation that was accounted for by including a third independent variable in all analyses (procedure type). In turn, this reduced the statistical power needed to make valid conclusions from Study 2. Study 2 should be replicated in the future to evaluate evidence for the two-factor model properly.

The effect of procedure type is quite interesting. The results demonstrate that for those who completed the DL procedure and expressed person-focused gratitude, there was a difference in how satisfied their needs were. Specifically, sharing person-focused gratitude fortified basic needs significantly more than privately expressing person-focused gratitude. The online instructions were delivered a week prior to the time of measurement and were identical to the in-person instructions. The slight change in procedure in and of itself does not convincingly account for this difference.

However, the procedure change may serve as a partial proxy for time itself. Participants who completed the PL procedure did so before there were any COVID-19-related mandates put into effect. Any participant who completed the DL procedure was under a stay-at-home order and dealing with any number of potential stressors. Sharing person-focused gratitude might have been even more beneficial to individuals' basic needs (i.e., belonging, meaningful existence, self-esteem, control) in a pandemic-stricken world. The effect of the pandemic cannot be entirely teased apart from the change in procedure, but certainly introduced a confound to this study.

Finally, the scale chosen to measure participants' levels of their basic needs, the Need Threat scale (Van Beest & Williams, 2006), should be reevaluated. A principal component analysis demonstrated insufficient evidence for the scale's proposed four-factor structure. Instead, the analysis suggested the presence of only one component, which did not allow for the examination of more specific needs. The original scale was intended for use after instances of ostracism and adapted for use in non-exclusion studies. However, other studies evaluating this scale for its intended use (e.g., Gerber, Chang, & Reimel, 2017) also found the measure low in construct validity and extracted only two factors instead of four.

## General Discussion

These two studies are a systematic investigation of gratitude expressions. Study 1 demonstrated that shared expressions of gratitude bolster basic needs and make individuals perceive interaction partners more positively. Study 2 did not

quite replicate these effects but suggests that individuals perceive themselves as warmer when they privately express gratitude if the focus is situation-focused rather than person-focused. This finding may be due to the incongruency that is present in shared expressions of situation-focused gratitude. People may not want others to perceive them as a braggart, so situation-focused gratitude is more fit for private expression. Privately expressing appreciation for your situation makes you perceive yourself as warmer, which could translate into prosocial behaviors in pursuit of a warm glow—the warm feeling you get when you help someone else (Andreoni, 1988; Imas 2014).

While the results do not fully support the two-factor model of gratitude, several factors need to be considered before discarding this model. The first limitation is that studies were statistically underpowered. This means that any conclusions we make about the effects of gratitude should be done so with caution and an eye toward replication in the future. Larger sample sizes in future iterations of either study will increase the reliability of any potential results.

Second, the impact of the COVID-19 pandemic can not be overstated. The history effect of this virus on general society are far-reaching and encompass every facet of daily life. Though we do not yet know the exact nature of these effects, it is safe to say that the pandemic adversely impacted many individuals' social life and mental health. Nearly half of our participants for Study 2 completed the study in isolation or quarantine, under stay-at-home orders enacted by state officials. Individuals were not able to socialize normally and were likely experiencing a great deal of stress and anxiety. As such, Study 2 was not

conducted under normal circumstances and should be conducted again in the future.

In addition to rerunning these studies, there are further avenues for research with the two-factor model. The two-factor model details four types of gratitude expressions but could apply to other emotions that can be both intra- and interpersonal, such as forgiveness or anger. For instance, sharing feelings of anger versus privately expressing anger (and what the focus of the anger is) may impact variables related to the self, the other, and the relationship.

For gratitude, it might be interesting to explore the potential limits or downsides to expressing gratitude to others. Identifying boundary conditions, such as how often is too often or what level of genuineness the expression requires to be effective, is essential to understanding the impact and implications of gratitude.

In conclusion, these studies paint an incomplete picture of gratitude's function as it relates to the self, the other, and relationships. We established adequate evidence for the superiority of shared expressions over private expressions (Study 1) but did not replicate this finding in the follow-up study. Overall, the hypothesized two-factor model was not supported. There is an evident need for more research that addresses the limitations of these studies. However, this work does not undermine the many positive effects of gratitude and should be revisited to understand the validity of the two-factor model of gratitude expressions.

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## Appendix A. Experimenter Script

"This is a study on how people work together. For the first part of the study, you will be working separately to build words out of the letters provided to you in a box. One of you will be working on a difficult task, and one of you will be working on the simple task."

**PRESENT ENVELOPE**

To participant: "You have randomly chosen the difficult task."
To confederate: "So you will be working on the simple task. Since your task is easier, you may finish early and have letters leftover. You may offer them to your partner if you want, but you are not required to. Each box has specific instructions inside. You will have six minutes to complete your tasks."

**DISTRIBUTE BOXES**

"If you received the simple task, you will work at the station in the front of the room. If you received the difficult task, you will work right here."

**SET TIMER FOR 6 MINUTES**

"You may begin *now*."

**AT 2 MINUTES LEFT: CHECK ON CONFEDERATE**

*CONFEDERATE:* "I think I'm done. These are extra. Can I give these to my partner?"

"Sure."

**BRING EXTRA LETTERS TO PARTICIPANT**

"These are extra letters that your partner wanted you to have."

**AT 6 MINUTES, TIMER GOES OFF**

"Okay, time is up."

## Appendix B. Gratitude Note Instructions

**Private Condition**

Take a minute to reflect on the experiment up to this point. Think of what you appreciate about your partner. Please write a short paragraph expressing your gratitude.

(This is for experimenter use only)

**Shared Condition**

Take a minute to reflect on the experiment up to this point. Think of what you appreciate about your partner. Please write a short paragraph expressing your gratitude.

(This will be shared with your partner)

## Appendix C. Gratitude Task Instructions

**Private, Person-focused Condition**

For the next 7 days, we would like you to focus on trying to go the extra mile to record genuine feelings of gratitude towards your significant other. At least once a day, please express your gratitude in a written form. You may do this as a journal entry or jotted down in a note on your phone. For example, thank your partner or tell them how much you appreciate them. It is NOT necessary to express this gratitude to anyone.

**Private, Situation-focused Condition**

For the next 7 days, we would like you to focus on the things for which you are genuinely grateful. At least once a day, please express your gratitude in a written form. You may do this as a journal entry or jotted down in a note on your phone. For example, if you feel grateful for a beautiful day or a good grade, write it down. It is NOT necessary to express this gratitude to anyone.

**Shared, Person-focused Condition**

For the next 7 days, we would like you to focus on trying to go the extra mile to express genuine feelings of gratitude to your significant other. At least once a day, please express your gratitude verbally. For example, thank your partner or tell them how much you appreciate them. It is NOT necessary to write anything down.

**Shared, Situation-focused Condition**

For the next 7 days, we would like you to focus on the things for which you are genuinely grateful. Talk about them and share your gratitude with your partner. At least once a day, please express your gratitude verbally. For example, if you feel grateful for a beautiful day or a good grade, share it with your partner. It is NOT necessary to write anything down.

## Appendix D. Study 2 Results

*Means and Standard Deviations for Study 2*

| | Private, Situation-Based Gratitude n= 26 | | Private, Person-Based Gratitude n= 23 | | Shared, Situation-Based Gratitude n= 26 | | Shared, Person-Based Gratitude n= 42 | |
|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| How serious did you take your assignment? | 5.69 | 1.29 | 5.43 | 1.34 | 581 | 1.06 | 5.90 | 1.19 |
| How often did you express gratitude? | 4.77 | 0.71 | 4.39 | 0.89 | 4.77 | 0.91 | 5.26 | 0.70 |
| Satisfaction of Needs | 3.17 | 0.22 | 3.1 | 0.59 | 3.15 | 0.23 | 3.20 | .21 |
| Warmth (of self) | 5.92 | 0.82 | 5.43 | 0.99 | 5.56 | 0.74 | 5.77 | 0.80 |
| Competence (of self) | 5.89 | 0.91 | 5.70 | 0.94 | 5.95 | 0.65 | 5.93 | 0.86 |
| Warmth (of partner) | 5.94 | 0.76 | 5.90 | 0.76 | 5.97 | 0.76 | 6.04 | 0.95 |
| Competence (of partner) | 6.02 | 0.89 | 5.99 | 0.805 | 6.13 | 0.79 | 6.17 | 0.98 |
| Closeness | 4.50 | 2.08 | 5.17 | 1.7 | 4.81 | 1.63 | 5.40 | 1.42 |
| Relationship Satisfaction | 4.02 | 1.01 | 4.02 | 0.74 | 4.21 | 0.63 | 4.17 | 0.78 |